

### REMARKS

This paper is filed in response to an Office action mailed on August 10, 2007. In that Office action, claims 4-6 and 10 stand objected to while claims 1-3, 7-9 and 11-12 stand rejected in view of prior art. More specifically, claims 1-3, 7 and 11 stand rejected as being anticipated by U.S. Patent No. 5,155,792 ("Vali") and claims 7-9 stand rejected as being anticipated by U.S. Patent No. 6,334,019 ("Birks"). Furthermore, claim 12 stands rejected as being obvious over U.S. Patent No. 3,567,549 ("Hoffmeister") in view of Birks. In view of the amendments and remarks submitted herewith, reconsideration and allowance of all pending claims are respectfully requested.

First, with respect to the objections to claims 4-6 and 10, claims 4 and 10 are currently cancelled while claims 5 and 6 have been previously amended (in a preliminary amendment filed with the application) to be in proper dependent form. Accordingly, applicants respectfully submit the objections should be withdrawn.

Turning to the prior art rejections, claims 1-3, 7 and 11 stand rejected as being anticipated by Vali. The Examiner asserts that Vali discloses the claimed microstructured optical fiber and methods of producing the same. Applicants respectfully traverse those rejections, as discussed in more detail in the paragraphs hereinafter. More specifically, Vali fails to disclose each and every element of the claims as currently amended, and thus the anticipation rejection must fail.<sup>1</sup>

Claim 1, as well as claims 2 and 3 dependent thereon, now specifies a method of producing a microstructured optical fiber from a monolithic preform formed from optically suitable polymeric material including a step of creating a plurality of zones at predetermined locations in the monolithic preform. As currently amended, claim 7 similarly specifies a method of producing a microstructured optical fiber from a monolithic preform including a step of creating channels at predetermined locations in the monolithic preform. Furthermore, claim 11 now specifies a microstructured optical fiber produced from a monolithic preform formed from optically suitable polymeric material.

Vali fails to disclose such elements. More specifically, Vali discloses an optical fiber with a fiber core (20, 120, 220) surrounded by a cladding layer (30, 130, 230)

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<sup>1</sup> Anticipation under 35 USC §102 requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention." *Rockwell International Corp v United States*, 47 USPQ2d 1027 (Fed. Cir. 1998)

having a second index of refraction less than the first index of refraction. Included within the cladding layer (30, 130, 230) is a plurality of tube structures (40, 140, 240) arranged about the fiber core (20, 120, 220). Each tube structure (40, 140, 240) defines a channel of cross-sectional diameter, with each channel typically being filled with air. The Vali specification further discloses that the core (20, 120, 220) and cladding (30, 130, 230) may be contemporaneously fabricated using a conventional fiber optic drawing process in order to form the fiber (10, 100, 200). Specifically, an arrangement including a solid rod surrounded by a plurality of preform capillary tubes is suspended from a draw tower to fabricate optical fibers (column 3, lines 41-57). The manufacturing method disclosed by Vali is a stacking and drawing process wherein the individual fiber elements (the core and cladding capillary tubes) are stacked to form an array which is subsequently drawn to form the optical fiber. Vali does not teach or suggest a monolithic preform formed from an optically suitable polymeric material within which voids are formed at predetermined locations. Applicants therefore respectfully submit that the anticipation rejections should be withdrawn.

Still referring to the prior art rejections, claims 7-9 stand rejected as being anticipated by Birks. The Examiner asserts that Birks discloses a method of producing a microstructured optical fiber from a monolithic preform. Applicants respectfully traverse those rejections, as discussed in more detail in the paragraphs hereinafter. As with Vali before, Birks fails to disclose each and every element of the claims as currently amended, and thus the anticipation rejection must fail.

Claim 7, as well as claims 8 and 9 dependent thereon, now specifies a method of producing a microstructured optical fiber including the steps of creating channels at predetermined locations in the monolithic preform wherein the channels serve to define light guiding cores, and subsequently drawing the monolithic preform to create a length of the microstructured optical fiber.

Birks fails to disclose such elements. More specifically, Birks discloses a large core photonic crystal fiber for transmitting radiation having a core comprising a substantially transparent core material and having a core diameter of at least  $5\mu$ . It is important to note that Birks is specifically directed to silica fibers and there is no mention of using polymer material. The Birks specification discloses the manner in which the crystal fiber is produced by a stack and draw process (column 10, lines 4-19). A series of cylindrical rods of fused silica are stacked together and then drawn using a drawing tower to form a

cane. A series of canes are then stacked and subsequently drawn down into the final fiber using the drawing tower. The Birks specification discloses an alternative manufacturing technique which similarly employs another stack and draw process (column 10, lines 21-26). Birks does not teach or suggest a monolithic preform formed from an optically suitable polymeric material within which voids are formed at predetermined locations. Accordingly, applicants respectfully submit that the anticipation rejections should be withdrawn.

Turning to the rejections based upon obviousness, claim 12 stands rejected as being obvious over Hoffmeister in view of Birks. The Examiner asserts that the combination of Hoffmeister and Birks discloses a microstructured optical fiber for imaging applications having air channels which act as light guiding cores. As stated by the Examiner, Hoffmeister fails to disclose a microstructured optical fiber having light guiding cores comprising air channels. Birks fails to supply all of the deficiencies of Hoffmeister. As discussed above, Birks fails to disclose a monolithic preform formed from optically suitable polymeric material within which voids are formed at predetermined locations as now specified in the amended claims at issue. As the combination of Hoffmeister and Birks fails to disclose each and every element of claim 12 as currently amended, applicants respectfully submit that the obvious rejection must fail and should be withdrawn.<sup>2</sup>


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<sup>2</sup> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations " MPEP §2143

In light of the foregoing, applicants respectfully submit that each of the currently pending claims, i.e. claims 1-3, 5-9 and 11-12, are in a condition for allowance and respectfully solicit the same. If a telephone call would expedite prosecution of the subject application, the Examiner is invited to call the undersigned agent. The undersigned verifies that he is authorized to act on behalf of the assignee of the present application.

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Respectfully submitted,

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